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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/735,941	12/13/2000	Bruno Couillard	47-06 US	8092

7590

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EXAMINER
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SHEW, JOHN

ART UNIT	PAPER NUMBER
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2664

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/735,941

Applicant(s)

COUILLARD, BRUNO

Examiner

John L Shew

Art Unit

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— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,21,22,24,26,28 and 29 is/are rejected.
- 7) ☒ Claim(s) 7-20,23,25,27 and 30-33 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Specification*

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4, 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Garofalo et al.

Claim 1, Garofalo teaches a method of synchronizing a timing device of a client station equated to a second node and processing means (FIG. 2) referenced by clock H of satellite SAT, comprising the steps of sending a plurality of packets each packet being sent at a predetermined time having a predetermined temporal spacing from other packets (FIG. 3) referenced by TDMA bursts at fixed time intervals of 1 ms, from a time server equated to a first node and processing means (FIG. 2, column 1 lines 66-67, column 2 lines 1-3) referenced by ground station MS, to a client station via a communications network (FIG. 2) referenced by satellite client station SAT, receiving

the plurality of packets at the client station (column 2 lines 24-31) referenced by reception of bursts by first remote system represented by the satellite, determining a time indicative of a local time of receipt of the plurality of packets at the client station and storing time data in dependence thereon (FIG. 2, column 4 lines 62-67) referenced by satellite onboard module SMOD verifying the arrival time of the packet burst, returning the plurality of packets to the time server via the communications network (column 5 lines 14-19) referenced by ground terminal receiving a packet burst, determining a time indicative of a local time of receipt of the plurality of packets at the time server (column 6 lines 3-11) referenced by evaluation of propagation delay by the ground station which implicitly requires a local time of receipt, determining synchronization data in dependence upon round trip delay of the packets and variance in temporal spacing of received packets (column 4 lines 57-67, column 5 lines 1-10) referenced by using the packet propagation delay after a few iterative loops to determine transmission adjustment.

Claim 4, Garofalo teaches the plurality of packets are sent at predetermined times such that temporal spacing between consecutive packets are the same (FIG. 3) referenced by TDMA bursts with 1ms interval per burst.

Claim 6, Garofalo teaches the time server sends a plurality of packets, each packet being sent at a predetermined time (FIG. 3) referenced by the TDMA burst of 1ms per burst, to each of a plurality of client stations via the communications network (FIG. 1,

column 2 lines 11-13) referenced by the synchronization of two or more ground stations with each other.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 3, 5, 21, 22, 24, 26, 28, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garofalo as applied to claims 1, 4 and 6 above, in view of Inukai.

Claims 2, 3, 5, 21, 22, 24 and 29, Garofalo teaches a method of synchronizing a reference clock of a ground station and a clock of a remote system. Garofalo does not teach threshold values in the synchronization calculation nor sending a corrective time signal to the client station. Inukai teaches comparing the synchronization data to threshold values (column 15 lines 58-61) referenced by comparison of error should not exceed lower threshold  $Y_{min}$  nor upper threshold  $Y_{max}$ , determining data indicative of a time correction if the determined data are within the threshold values (column 15 lines 61-66) referenced by the termination of the correction interval and start of next interval implies only calculation of values within the threshold range will be used, sending a

signal comprising the data indicative of a time correction from the time server to the client station (FIG. 10) referenced by the Clock Correction Data from the ground based clock to the onboard satellite clock, repeating the data determination steps a) to f) if the data are not within the threshold values (column 15 lines 64-66) referenced by the immediate termination of the current correction interval and the start of a new correction interval. Inukai teaches receiving the signal comprising the data indicative of a time correction at the client station (FIG. 10, column 17 lines 16-28) referenced by the Clock Correction Data to the satellite client station, synchronizing the timing device of the client station in dependence upon the received signal (column 9 lines 3-7) referenced by the clock correction of communication satellite.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate threshold detection as taught by Inukai to the clock synchronization of Garofalo for the purpose of an improved clock correction technique.

Claim 26, Garofalo teaches a method of synchronizing a timing device coupled to a communication network wherein the first node is a client station and the second node is another client station (column 2 lines 14-17) referenced by the synchronization of two satellites each being a client station.

Claim 28, Garofalo teaches steps a) to e) are processed in real time (column 4 lines 38-43) referenced by employing a closed loop synchronization process to enable real time synchronization of the clocks.

***Allowable Subject Matter***

3. Claims 7-20, 23, 25, 27 and 30-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Citation of Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Patent 4792963, Campanella et al. discloses a satellite clock synchronization system. Patent 6539003, Agarwal et al. discloses a method for acquisition and synchronization of terminals in a satellite TDMA system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John L Shew whose telephone number is 703-305-8708. The examiner can normally be reached on 8:30am - 5:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 703-305-4366. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

js



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